

Case Study - Food Retail

Pay-back time of less than one year on Smart Store installation in French supermarket

By integrated control of refrigeration, HVAC and lighting, leading French retailer has proved pay-back times on the Smart Store installation of less than one year. The integrated control systems and smart installations have served as a model case for large number of French stores since its first implementation.

Minor investment in smart technology returns major energy savings

In close cooperation with Danfoss, a leading French retailer decided to make a thorough energy optimization in four of the chain's mid-size stores in Eastern France to determine the potential energy savings of a Smart Store installation. Heat reclaim, variable speed on compressors and a new Building Management System with integrated control of all electrical installations were some of the primary changes introduced in the stores.

"We got a chance to try out different technologies and different levels of ambitions and investments to gauge the potential savings of different solutions. In one of the stores we concentrated on the compressors and the BM System, while we added adaptive technology on cold cases and cold rooms in the most advanced installation", says Serge Louvet, Sales Director for Food Retail solutions in France.

The experiments returned short pay-back times. For the most advanced installation the pay-back time is less than two years and for the less advanced installation even less than one year. And with an expected lifetime on the solutions of more than ten years, the potential savings over the life cycle are substantial.

Facts about the benchmark study in Eastern France

The benchmark study was carried out in Eastern France, in the provinces of Alsace and Lorraine, in a temperate climate zone during the months of April 2012 and September 2012. All in all, the energy consumption was monitored during a period of 24 weeks in four stores with the following refrigeration and heating installations:

Reference store 1 and 2 without integrated control	Store 3 with Smart Store installation	Store 4 with Smart Store installation
<ul style="list-style-type: none"> Gas heat system, 3 fan coils 32 kW Electrical hot air curtain. Any optimization 	<ul style="list-style-type: none"> Heat reclaim Floating HP and BP Speed drives on compressors Building Management System with integrated control of light, heating, air conditioning Hot air curtain 18 kW + 2 fan coils 30 kW 	<ul style="list-style-type: none"> As store 3 plus: EEV for HT cabinets, heating system Gas hot air curtain 21 kW + 2 fan coils 32 kW
Weekly no. of opening hours: 76	Weekly no. of opening hours: 72	Weekly no. of opening hours: 78

The savings in Euros returned in store 3 and 4 with Smart Store installation:

Store 3 reference	Store 4 – advanced
6 624 € (40%)	6 649 € (40%)
Pay-back time: less than one year	Pay-back time: less than 2 years

"The test installation in Alsace Lorraine has proved that the Smart Store installation in fact has a very short pay-back time. And with a life time of more than 10 years on the installations, the potential savings on solutions like these are really big", ends Serge Louvet.